National Institute of Environmental Health Sciences

Meta-analyses of the associations of respiratory health effects with dampness and mold in homes

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Abstract:

The Institute of Medicine (IOM) of the National Academy of Sciences recently completed a critical review of the scientific literature pertaining to the association of indoor dampness and mold contamination with adverse health effects. In this paper, we report the results of quantitative meta-analyses of the studies reviewed in the IOM report plus other related studies. We developed point estimates and confidence intervals (CIs) of odds ratios (ORs) that summarize the association of several respiratory and asthma-related health outcomes with the presence of dampness and mold in homes. The ORs and CIs from the original studies were transformed to the log scale and random effect models were applied to the log ORs and their variance. Models accounted for the correlation between multiple results within the studies analyzed. Central estimates of ORs for the health outcomes ranged from 1.34 to 1.75. CIs (95%) excluded unity in nine of 10 instances, and in most cases the lower bound of the CI exceeded 1.2. Based on the results of the meta-analyses, building dampness and mold are associated with approximately 30-50% increases in a variety of respiratory and asthma-related health outcomes. PRACTICAL IMPLICATIONS: The results of these meta-analyses reinforce the IOM's recommendation that actions be taken to prevent and reduce building dampness problems, and also allow estimation of the magnitude of adverse public health impacts associated with failure to do so.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Indoor Environment, Meteorological Factors

Air Pollution: Allergens

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Upper Respiratory Allergy

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified